

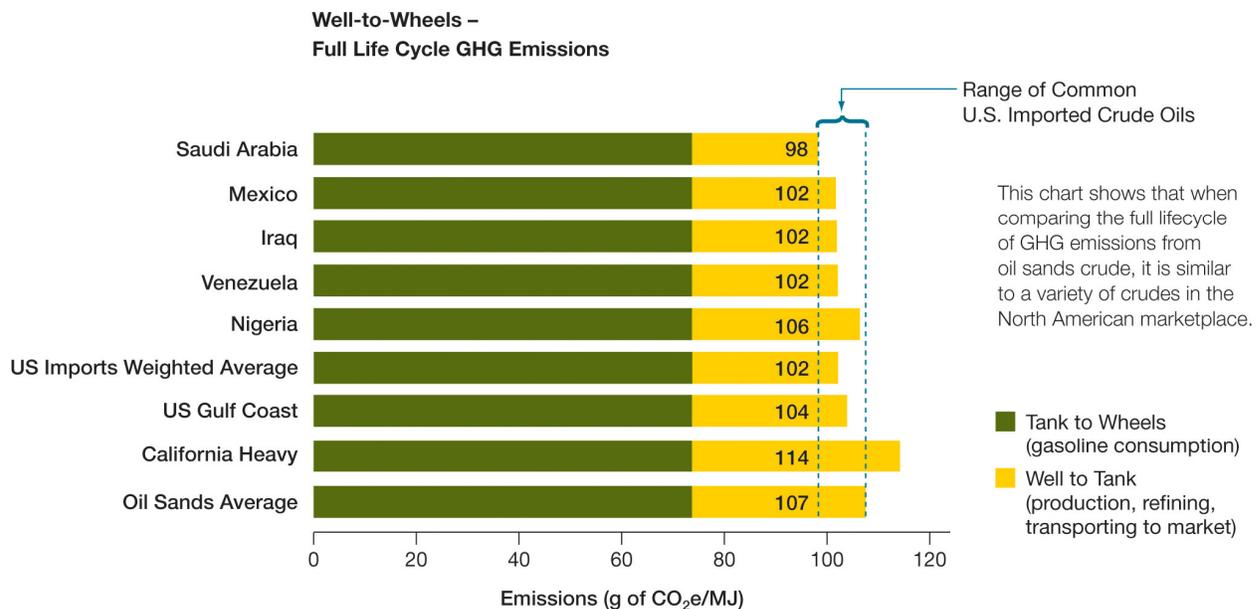
Alberta's oil sands

**FACTS
ABOUT**

Greenhouse gas emissions and the oil sands

ALBERTA is blessed with a beautiful natural environment and abundant globally valuable natural resources. We will protect our air, land and water while responsibly developing these natural resources.

- GHG emissions from all of Alberta's oil sands projects, including emissions from related co-generation facilities, totalled 41.9 megatonnes (Mt) in 2009; about 6.5% of Canada's overall GHG emissions.
 - Canada is responsible for about 2% of global emissions. Alberta's extraction and upgrading of oil sands accounts for about 0.15% of global GHG emissions.
- Canada's total emissions grew by 100 Mt between 1990 and 2009, with oil sands-related emissions responsible for approximately 25% (25 Mt) of the total increase; transportation was responsible for 44% (44 Mt).
- Alberta has a climate change strategy and legislation in place that ensures environmental protection while maintaining quality of life and allowing for sustainable economic growth.
 - Large emitters over 100,000 tonnes of GHGs per year must meet mandatory reduction targets – Alberta is the only jurisdiction in North America with this requirement.
 - Emitters unable to meet the target must pay \$15-per-tonne into a clean energy technology fund (worth \$257 million as of May 2011), or purchase Alberta offset carbon credits.
 - Alberta has avoided nearly 24 million tonnes of emissions to date.
- The oil sands industry's strides to improve energy efficiency have resulted in GHG emissions per barrel of oil produced being reduced by an average of 29% between 1990 and 2009; some oil sands operations have achieved per barrel emission reductions above 50%.
 - The challenge is continuing to manage emissions as production increases in response to North American and global energy demand.
- Reports about oil sands related GHG emissions often focus on just one element of oil development – production. Recent research on lifecycle emissions from crude oils used in North America shows that direct emissions from oil sands production are comparable to a number of so-called "conventional" crudes.



- Crude oil is not a finished product; it all gets processed into fuel and other products.
 - GHG emissions from various crudes can be compared at numerous stages of their development -- production, refining, transportation and use, but it is only the lifecycle emissions, often referred to as 'well to wheels', that provide a comprehensive and comparable assessment of GHG emissions from crude oil.
- A September 2010 report from Cambridge Energy Research Associates found that: "The average oil sands import to the United States has well-to-wheels life-cycle GHG emissions about 6 percent higher than the average crude refined in the United States."
- A 2009 report by Jacobs Consultancy and Lifecycle Associates found that direct life cycle GHG emissions from oil sands crude average about 5% higher than the average of a variety of conventional crudes in the North American marketplace. If related oil sands cogeneration (power produced from waste energy) is taken into account, oil sands life cycle emissions are equivalent to or lower than numerous crudes in the market.
- Final combustion of the oil – mostly from vehicle tailpipes – accounts for 70-80% of lifecycle emissions.
 - These vehicle emissions are the same regardless of the crude oil from which the gasoline is derived.